SKOOKUM, NORTH

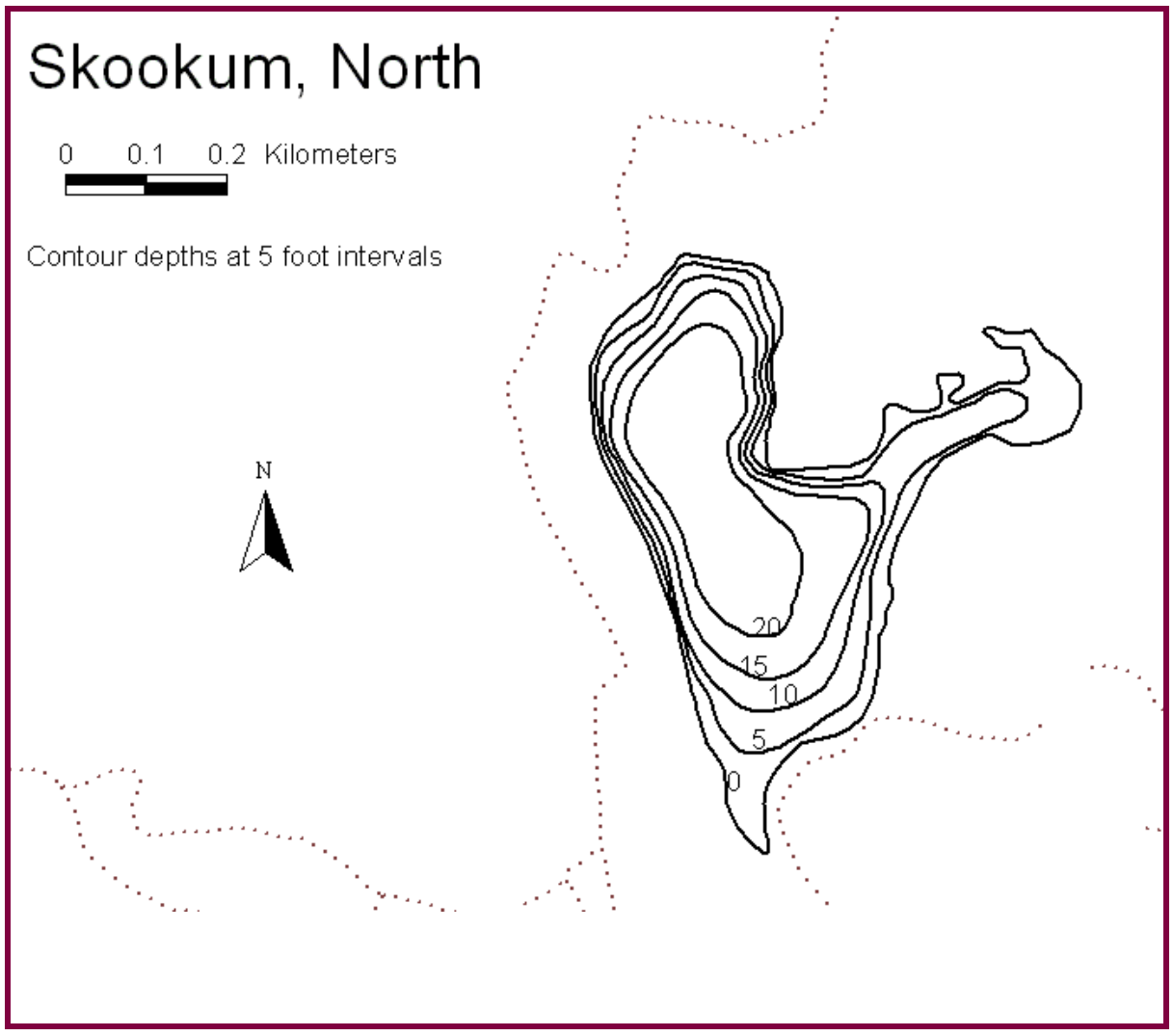
PEND OREILLE County

Lake ID: SKOPE2

Ecoregion:

North Skookum Lake is located approximately eighteen miles north of the border of town of Newport in the Colville National Forest. It is fed by a small creek and drains via the North fork of the Skookum River and South Skookum lake to the Pend Oreille River.

Area (acres)	*Maximum Depth (ft)*	*Mean Depth (ft)*	*Drainage (sq mi)*	
39	20			
Volume (ac-ft)	***Shoreline (miles)***	***Altitude (ft abv msl)***	***Latitude***	***Longitude***
540		3550		



Station Information

SKOPE2

Primary Station	Station # 1	latitude: 48 24 27.0	longitude: 117 10 50.0
	Description: Deep part of the lake, at the north side of where an arm enter to the east.		

Trophic State Assessment for 1999

SKOOKUM, NORTH

Analyst: Sarah O'Neal

TSI_Secchi:	[a]	45
TSI_Phos:		54
TSI_Chl:		64
Narrative TSI:	[b]	E

North Skookum is a small, popular lake surrounded by the Colville National Forest. Except for campgrounds, a forested watershed surrounded the lake. Some logging occurred in the watershed. The lake is likely naturally eutrophic. Even though tannins in the water colored the lake brown, Secchi transparency was better than total phosphorus and chlorophyll would predict. Nutrient levels indicated eutrophy. Some anoxia occurred in the hypolimnion, particularly later in the summer when the lake also showed evidence of possible slight internal nutrient loading. In September, conductivity levels increased sharply in the hypolimnion. Significant algal growth occurred, particularly late in the summer. It was reported to have gotten worse in the few years prior to sampling. Lake visitors indicated less algae growth as a priority in the questionnaire. However the lake supported a healthy, diverse plant community and served as habitat for a variety of fish and wildlife. Beavers, ducks, osprey, and great blue heron used the lake. Additionally, WDFW managed the lake for rainbow trout, planting about 6000 fry each spring. Because snowmelt mainly feeds it, fish tend to grow much slower in North Skookum than in neighboring, higher nutrient, South Skookum Lake. Hypolimnetic anoxia reduced the available habitat for salmonids. Just prior to our sampling, WFDW attempted to improve the fishery by shortening the fishing season.

Lake uses consisted mainly of fishing, although questionnaire respondents also indicated hiking, watching wildlife, relaxing, and swimming as lake activities. Fishers often used the campground near the lakeshore. The natural eutrophic state of the lake adequately supported uses. A close eye should be kept on this nice resource, however, to prevent any further anthropogenic eutrophication. The lake may be at particular risk because any increase in eutrophication may increase hypolimnetic anoxia, resulting in increased internal nutrient loading and accelerating the eutrophication process. Possible nitrogen limitation was also indicated. Due to the limitations of the sampling conducted during this study, it is difficult to determine whether nitrogen is also limiting to the system. Future studies may propose a nitrogen criterion. Consequently, any forest fertilizer applications should be carefully managed. We recommend a total phosphorus criterion of 35.9 ug/L (mean 31.6 ug/L plus standard deviation of 4.3 ug/L).

Mean Secchi = 4.0m; Mean TP = 31.6 ug/L; Mean Chl = 30.0 ug/L

[a] TSI Qualifiers: B or W-Secchi Disk hit bottow or entered weeds; J-Estimate; N-Fewer than the required number of samples

[b] E=eutrophic, ME=mesoeutrophic, M=mesotrophic, OM=oligomesotrophic, O=oligotrophic

Chemistry Data

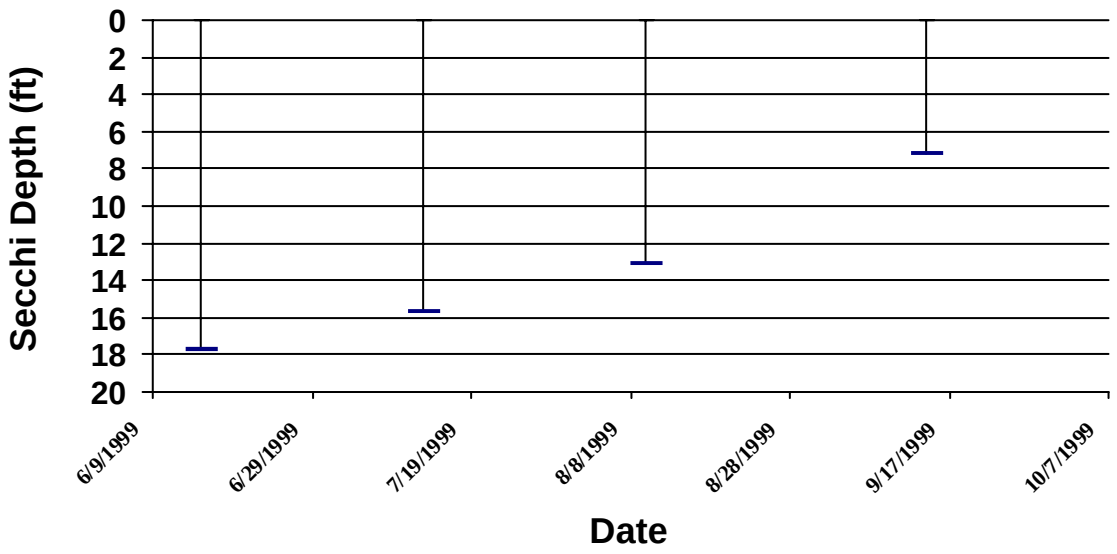
SKOOKUM, NORTH

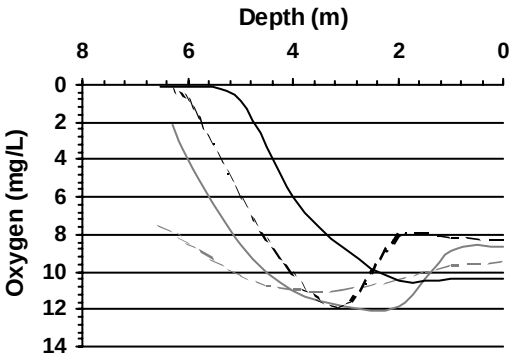
Date	Time	Strata	Tot P (ug/L	Tot N (mg/L)	TN:TP	Chloro-phyll (ug/L)	Fecal Col. Bacteria (#/100mL)	Hardness (mg/L)	Calcium (ug/L)	Turbidity (NTU)
Station 1										
6/15/1999	0900	E	25.2	.104	4	1.2		4.19	1290	.9
		H	27.7	.121	4					
7/13/1999	0900	E	12.1	.19	16	1.93				.5 U
		H	13.5	.223	17					
8/10/1999	0845	E	22.2	.264	12	4.6				.7
		H	37	.27	7					
9/14/1999	0900	E	28.4	.561	20	25.9				2
		H	33.9	.317	9					

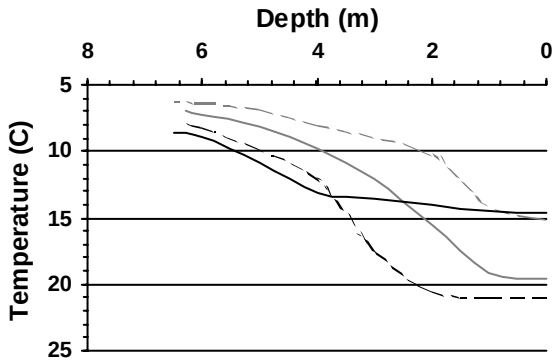
Strata: L=lake surface, E=epilimnion, H=hypolimnion; Qualifier: J=Estimate, U=Less than, G=Greater than.

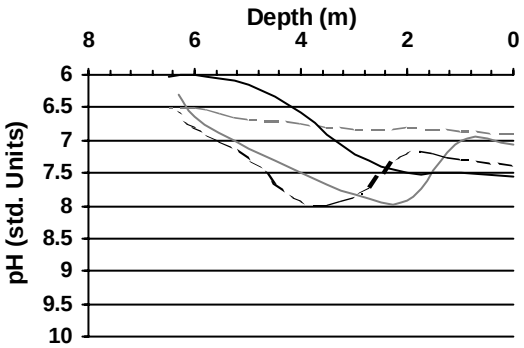
Secchi Depth and Profile Graphics

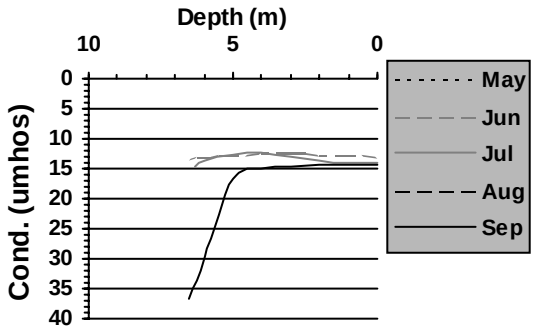
Station: 1 SKOPE2











Secchi Data and Field Observations

SKOOKUM, NORTH

Date	Time	Temp-erature (F)	Secchi (ft)	Color (1-greens, 11-browns	Bright-ness (pct)	Wind (1-none, 5-gusty)	Rainfall (0-none, 5-heavy)	Aesthetics (1-bad, 5-good)	Swimming (1-poor, 5-good)	Geese (#)	Waterfowl (besides geese #)	Boats-Fishing (#)	Boats-Skiing (#)
Station 1													
6/15/1999			17.72	6	0	2	1	4	4	0	5	0	0
	Sampler: HALLOCK			Remarks:	Bottom 6.5M. Large leeches, osprey, great blue heron. Not much zooplankton. Long-time visitors (5 and 20 years) report more algae at outlet stream last couple years. Lake is exclusively used for fishing. RBT are stocked. Dissolved oxygen measurement qualified as an estimate due to calibration failing QA/QC requirements.								
7/13/1999			15.7	7	0	1	1	4	4	0	0	3	
	Sampler: HALLOCK			Remarks:	Bottom 6.4M. Water is brown with tannins. Some faint algae colonies in 5M cast. Lots of salmonid fry near access. Dissolved oxygen measurement qualified as an estimate due to calibration failing QA/QC requirements.								
8/10/1999			13.1	7	0	2	1	4	3	0	9		
	Sampler: HALLOCK			Remarks:	Bottom 6.3M. A few campers. Private CG full (32 sites) last weekend, but not busy this year due to cold weather. Large hatch of small midges. Lots of fry rising. Blue-green algae clumps through water column. Dissolved oxygen measurement qualified as an estimate due to calibration failing QA/QC requirements.								
9/14/1999			7.2	7	0	1	1	3	2	0	10	0	0
	Sampler: HALLOCK			Remarks:	Bottom: 6.5M. Algae (possibly Anabaena with some Gloeotrichia) fairly thick (took sample). No oxygen below 5M.								